

Name KEY

## Practice Writing Word Problems

Use the 4 step method to write and solve each equation.

### Consecutive Numbers

1. Find three consecutive odd numbers who sum is 303.

$\begin{aligned} 1^{st} &= x \\ 2^{nd} &= x+2 \\ 3^{rd} &= x+4 \\ \text{Total} &= 303 \end{aligned}$	$\begin{aligned} x+x+2+x+4 &= 303 \\ 3x+6 &= 303 \\ -6 & \quad -6 \\ \hline 3x &= 297 \\ \frac{3x}{3} &= \frac{297}{3} \end{aligned}$	$\begin{aligned} 1^{st} &= x = 99 \\ 2^{nd} &= x+2 = 101 \\ 3^{rd} &= x+4 = 103 \end{aligned}$
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2. Find three consecutive even numbers who sum is 54.

$\begin{aligned} 1^{st} &= x \\ 2^{nd} &= x+2 \\ 3^{rd} &= x+4 \\ \text{Total} &= 54 \end{aligned}$	$\begin{aligned} x+x+2+x+4 &= 54 \\ 3x+6 &= 54 \\ -6 & \quad -6 \\ \hline 3x &= 48 \\ \frac{3x}{3} &= \frac{48}{3} \end{aligned}$	$\begin{aligned} 1^{st} &= 16 \\ 2^{nd} &= 18 \\ 3^{rd} &= 20 \end{aligned}$
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3. What four consecutive integers have a sum of -34?

$\begin{aligned} 1^{st} &= x \\ 2^{nd} &= x+1 \\ 3^{rd} &= x+2 \\ 4^{th} &= x+3 \\ \text{Total} &= -34 \end{aligned}$	$\begin{aligned} x+x+1+x+2+x+3 &= -34 \\ 4x+6 &= -34 \\ -6 & \quad -6 \\ \hline 4x &= -40 \\ \frac{4x}{4} &= \frac{-40}{4} \end{aligned}$	$\begin{aligned} 1^{st} &= x = -10 \\ 2^{nd} &= x+1 = -9 \\ 3^{rd} &= x+2 = -8 \\ 4^{th} &= x+3 = -7 \end{aligned}$
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### Age Problems

1. Lisa is 16 years younger than Kathy. If the sum of their ages is 30, how old is Lisa?

$\begin{aligned} \text{Kathy} &= x \\ \text{Lisa} &= x-16 \\ \text{Total} &= 30 \end{aligned}$	$\begin{aligned} x+x-16 &= 30 \\ 2x-16 &= 30 \\ +16 & \quad +16 \\ \hline 2x &= 46 \\ \frac{2x}{2} &= \frac{46}{2} \end{aligned}$	$\begin{aligned} \text{Kathy} &= x = 23 \\ \text{Lisa} &= x-16 = 23-16 = 7 \end{aligned}$
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2. Al's father is 45. He is 15 years older than twice Al's age. How old is Al?

$\begin{aligned} \text{Father} &= 45 \\ \text{Al} &= x \end{aligned}$	$\begin{aligned} 2x+15 &= 45 \\ -15 & \quad -15 \\ \hline 2x &= 30 \\ \frac{2x}{2} &= \frac{30}{2} \end{aligned}$	$\text{Al} = x = 15$
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3. Carrie is six years younger than Cal. Jenny is three times Cal's age plus ten. The sum of their ages is 72. What are the three ages?

$\begin{aligned} \text{Carrie} &= x-6 \\ \text{Jenny} &= 3x+10 \\ \text{Cal} &= x \\ \text{Total} &= 72 \end{aligned}$	$\begin{aligned} x-6+3x+10+x &= 72 \\ 5x+4 &= 72 \\ -4 & \quad -4 \\ \hline 5x &= 68 \\ \frac{5x}{5} &= \frac{68}{5} \end{aligned}$	$\begin{aligned} \text{Carrie} &= x-6 = 13.6-6 = 7.6 \\ \text{Jenny} &= 3(13.6)+10 = 50.8 \\ \text{Cal} &= x = 13.6 \end{aligned}$
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## Geometry problems

1. The measure of one angle is thirteen less than five times the measure of another angle. The sum of the measures of the two angles is  $140^\circ$ . Determine the measure of each angles.

$$1^{st} = 5x - 13$$

$$2^{nd} = x$$

$$\text{Total} = 140^\circ$$

$$5x - 13 + x = 140$$

$$6x - 13 = 140$$

$$\begin{array}{r} +13 \\ +13 \end{array}$$

$$6x = 153$$

$$\frac{6x}{6} = \frac{153}{6}$$

$$x = 25.5^\circ$$

$$1^{st} = 5(25.5) - 13 = 114.5^\circ$$

$$2^{nd} = x = 25.5^\circ$$

2. An angle measures seventeen more than three times a number. Its supplement is three more than seven times the number. What is the measure of each angle?

3. The angles of a triangle are described as follows:  $\angle A$  is the largest angle; its measure is twice the measure of  $\angle B$ . The measure of  $\angle C$  is 2 less than half the measure of  $\angle B$ . Find the measures of the three angles.

$$\angle A = 2x$$

$$\angle B = x$$

$$\angle C = \frac{1}{2}x - 2$$

$$\text{Total} = 180^\circ$$

$$2x + x + \frac{1}{2}x - 2 = 180$$

$$3\frac{1}{2}x - 2 = 180$$

$$3\frac{1}{2}x = 182$$

$$\frac{3\frac{1}{2}x}{3\frac{1}{2}} = \frac{182}{3\frac{1}{2}} \quad x = 52^\circ$$

$$\angle A = 2x = 104^\circ$$

$$\angle B = x = 52^\circ$$

$$\angle C = \frac{1}{2}x - 2 = 26 - 2 = 24^\circ$$

4. The length of a rectangle is twice the width plus 12. The perimeter is 245. Find the length and width.



$$2x + 12$$

$$\text{Length} = 2x + 12$$

$$\text{Width} = x$$

$$\text{Total} = 245$$

perimeter  
Formula

$$2L + 2W$$

$$2(2x + 12) + 2(x) = 245$$

$$4x + 24 + 2x = 245$$

$$6x + 24 = 245$$

$$\begin{array}{r} -24 \\ -24 \end{array}$$

$$6x = 221$$

$$\frac{6x}{6} = \frac{221}{6}$$

$$x = 36.83$$

$$\text{Length} =$$

$$2(36.83) + 12$$

$$= 73.66 + 12$$

$$= 85.66$$

$$\text{Width} = 36.83$$

## Multi step problems

1. Three times the difference of 5 minus a number is 27. Find the number.

$$3(5 - x) = 27$$

$$15 - 3x = 27$$

$$5 - x = 27$$

$$\begin{array}{r} 15 - 3x = 27 \\ -15 \end{array}$$

$$\begin{array}{r} -3x = 12 \\ -3 \end{array}$$

$$x = -4$$

2. One number is six less than another. Three times the smaller number is two more than twice the larger. Find the numbers.

$$\text{Big} = x$$

$$\text{Small} = x - 6$$

$$3(x - 6) = 2x + 2$$

$$3x - 18 = 2x + 2$$

$$\begin{array}{r} -2x \\ -2x \end{array}$$

$$x - 18 = 2$$

$$x - 18 = 2$$

$$\begin{array}{r} +18 \\ +18 \end{array}$$

$$x = 20$$

$$\text{Big} = x = 20$$

$$\text{Small} = x - 6 = 20 - 6 = 14$$